

- 34 -

WHAT WE CLAIM AS OUR INVENTION IS:

1. A method of partitioning an active agent into oil bodies, said method comprising the steps of
 - 5 a) dissolving the active agent in a first solvent;
 - b) mixing the dissolved active agent with a second solvent to obtain a mixture of the first and second solvent comprising the active agent; and
 - c) contacting said mixture of the first and second solvent with oil bodies to partition said active agent into said oil bodies.
- 10 2. A method according to claim 1 where said active agent does not partition into oil bodies when contacted with oil bodies in the absence of a solvent or when the active agent is dissolved in the first solvent alone.
- 15 3. The method according to claim 2 wherein the active agent is insoluble in water.
4. The method according to claim 2 wherein the active agent is insoluble in the second solvent
- 20 5. A method according to claim 1 wherein the amount of said active agent partitioned in said oil bodies ranges from about 0.0001% to 50% (w/v).
6. A method according to claim 1 wherein the amount of said active agent partitioned into said oil bodies ranges from about 0.1% to 20% (w/v).
- 25 7. A method according to claim 1 wherein the amount of said active agent partitioned into said oil bodies ranges from about 0.1% to 10% (w/v).
8. A method according to claim 1 wherein the efficiency of partitioning of the active
30 into intact oil bodies ranges from about 10-99%.
9. A method according to claim 1 wherein the efficiency of partitioning of the active into intact oil bodies ranges from about 50-99%.
- 35 10. A method according to claim 1 wherein the efficiency of partitioning of the active into intact oil bodies ranges from about 90-99%.

- 35 -

11. A method according to claim 1 wherein said active agent is selected from the group of active agents consisting of hydrophobic molecules and amphipathic molecules.
- 5 12. A method according to claim 11 wherein said hydrophobic molecule is selected from the group consisting of clobetasol propionate, diclofenac, dithranol, retinoic acid, lidocaine, clindamycin, benzoyl peroxide and cyclosporine A.
- 10 13. A method according to claim 11 wherein said hydrophobic molecule has a log P value ranging from about 0 to 8.
14. A method according to claim 11 wherein said hydrophobic molecule has a log P value ranging from about 2 to 7.
- 15 15. A method according to claim 11 wherein said hydrophobic molecule has a log P value ranging from about 3 to 7.
16. A method according to claim 11 wherein said amphipathic molecule is selected from the group consisting of amphotericin B, phosphatidyl choline, tetracaine and actinomycin D.
- 20 17. A method according to claim 11 wherein said amphipathic molecule has a HLB value ranging from about 1 to 14.
- 25 18. A method according to claim 11 wherein said amphipathic molecule has a HLB value ranging from about 4 to 10.
19. A method according to claim 11 wherein said amphipathic molecule has a HLB value ranging from about 6 to 8.
- 30 20. A method according to claim 1 wherein said first solvent is non-compatible with oil bodies or undesirable in the final product.
- 35 21. A method according to claim 1 wherein said first solvent is an organic solvent.

- 36 -

22. A method according to claim 1 wherein said first solvent is selected from the group of solvents consisting of an alcohols, aliphatic hydrocarbons, aromatic hydrocarbons, chlorinated hydrocarbons, glycols, glycol ethers and their acetates, esters, ethers, ketones, oil, lipid and fatty acid.
- 5
23. A method according to claim 22 wherein the first solvent is an alcohol or a chlorinated hydrocarbon.
24. A method according to claim 22 wherein the first solvent is selected from the group consisting of isopropanol, ethanol and chloroform.
- 10
25. A method according to claim 1 wherein said second solvent is selected from the group of solvents consisting of water, aqueous buffer, oils, fatty acids, and lipids.
- 15
26. A method according to claim 25 wherein said aqueous buffer is selected from the group consisting of 50 mM monobasic sodium phosphate, pH 8.0 and 25 mM sodium bicarbonate, pH 8.3.
27. A method according to claim 25 wherein said oil is safflower oil.
- 20
28. A method according to claim 1 wherein said first solvent is substantially removed after it has been mixed with the second solvent.
29. A method according to claim 26 wherein said first solvent is substantially removed by evaporation or substantially reduced in volume by dilution.
- 25
30. A method according to claim 27 wherein the method of evaporation is exposing the sample to a stream of nitrogen.
- 30
31. A method according to claim 1 wherein said oil bodies are obtained from a cell containing oil bodies or oil body-like organelles.
32. A method according to claim 29 wherein said cell includes animal cells, plant cells, fungal cells, yeast cells, bacterial cells and algae cells.
- 35

- 37 -

33. A method according to claim 30 wherein said plant cell includes cells from pollens, spores, seed and vegetative plant organs.
34. A method according to claim 31 wherein said plant seeds are obtained from the group of plant species consisting of rapeseed (*Brassica spp.*), soybean (*Glycine max*), sunflower (*Helianthus annuus*), oil palm (*Elaeis guineensis*), cottonseed (*Gossypium spp.*), groundnut (*Arachis hypogaea*), coconut (*Cocos nucifera*), castor (*Ricinus communis*), olive (*Olea spp.*), safflower (*Carthamus tinctorius*), mustard (*Brassica spp.* and *Sinapis alba*), coriander (*Coriandrum sativum*), squash (*Cucurbita maxima*), linseed/flax (*Linum usitatissimum*), Brazil nut (*Bertholletia excelsa*), jojoba (*Simmondsia chinensis*), maize (*Zea mays*), crambe (*Crambe abyssinica*) and eruca (*Eruca sativa*).